

INSTALLING INTEL SOFTWARE DEVELOPMENT TOOLS ON DOS SYSTEMS

This card describes the procedure for installing Intel Software Development tools on an IBM* PC XT, PC AT or Network File Server end for making required modifications to the operating system.

HARDWARE — IBM PC XT OR IBM PC AT

OPERATING SYSTEM — PC-DOS Version 3.0 or later

SYSTEM MEMORY REQUIREMENTS — 192K minimum RAM

FIXED-DISK STORAGE CAPACITY — Dependent on product size

INSTALLING THE SOFTWARE

Make a backup copy of the product diskettes before installation. Diskettes can be backed up using the DOS DISKCOPY command.

It is recommended the user create a directory for the Intel products to avoid file name conflicts.

To install the software, perform the following:

1. Change to the desired directory.
2. Using the COPY *.* command, copy all files of each product disk to the desired directory.

MODIFYING THE SYSTEM CONFIGURATION

Before using Intel Software Development Tools, the system configuration file CONFIG.SYSTEM must be created or modified to include the FILES and BUFFERS commands. The FILES command specifies the maximum number of files that can be opened at the same time. The BUFFERS command specifies the number of disk buffers allocated in memory. To use Intel Software Development Tools, set the value of FILES to 12 (or greater) and set the value of BUFFERS to 10 (or greater).

These steps describe how to create the CONFIG.SYS file using the DOS COPY command.

1. Enter the following command:

```
COPY CON CONFIG.SYS <cr>
```

2. Enter the commands:

```
FILES = 12 (or greater) <cr>  
BUFFERS = 10 (or greater) <cr>
```

3. To save the file, press the F6 key and then press the <cr> key.
4. Reboot the system.

If CONFIG.SYS already exists on the system, use an editor to add to or modify the existing file by including the commands FILES = 12 (or greater) and BUFFERS = 10 (or greater).

If files and buffers are not set as described above, you may get a DOS SYSTEM ERROR #30 message when you use the products.

USING INTEL SOFTWARE DEVELOPMENT TOOLS

Intel Software Development Tools are ready for use after installing them and modifying the system configuration file. See the appropriate manual(s) supplied with each product for information on how to use it.

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Dear Customer:

Thank you for purchasing Intel's PL/M 51 Compiler Package for installation on an IBM PC/AT or PC/XT (DOS release 3.0 or greater). A checklist is attached so that you can confirm receipt of all items ordered.

Please be aware that by opening this package, you have agreed to abide by the Intel license agreement contained in this package. You may use the licensed program on a network, however you must purchase and obtain a separate license program for each terminal and workstation in the network from which the licensed program will be accessed. The license is not transferrable to any other person. You may make one copy of the licensed program for backup or archival purposes.

Intel is dedicated to providing you with advanced tools such as PL/M 51 that significantly boost programmer productivity, lower software development costs, and minimize product development times.

A description of Intel's software support services is attached. For further information on Intel products, contact your local Intel Sales Office.

Intel Corporation
Language Systems Operation
Systems Group

CHECKLIST FOR MATERIAL INCLUDED WITH
INTEL'S PL/M 51 COMPILER PACKAGE

ITEM	DESCRIPTION
Two binders consisting of:	
1	<ul style="list-style-type: none">o Software Installation Instruction Cardo <u>PL/M 51 User's Guide for DOS Systems</u>o <u>PL/M 51 Pocket Reference for DOS Systems</u>o Problem Report formso Intel Software License and Registration Certificateo Product Release Noteso Two (2) 5-1/4" diskettes
2	<ul style="list-style-type: none">o <u>MCS-51 Utilities User's Guide for DOS Systems</u>o <u>MCS-51 Utilities Pocket Reference for DOS Systems</u>

SOFTWARE SUPPORT SERVICES

Intel software products include Standard Intel Software Support for a 90 day period immediately following the licensing and receipt of the product.

Standard Software Support includes:

- Product updates as they are released
- Subscription Service, technical product information distributed via:
 - o Monthly issue of ;COMMENTS newsletter
 - o Quarterly Troubleshooting Guides
 - o Software Problem Report Service (SPR)
- Technical Information Phone Service (602) 869-4636 (TIPS)
- Membership in Insite User Program Library

To initiate Software Support Service you MUST REGISTER YOUR SOFTWARE PRODUCT! WE CANNOT PROVIDE SUPPORT SERVICES UNTIL THE REGISTRATION PROCESS IS COMPLETED.

To register and expedite service:

CALL DIRECT TO THE INTEL REGISTRATION DEPARTMENT (602) 869-4641 AND PROVIDE THE INFORMATION REQUESTED ON THE REGISTRATION CARD RECEIVED WITH THE PRODUCT

OR

COMPLETE THE REGISTRATION CARD RECEIVED WITH THE PRODUCT AND MAIL THE CARD TO INTEL'S REGISTRATION DEPARTMENT. SINCE TROUBLESHOOTING GUIDES ARE PRODUCED QUARTERLY, WE ENCOURAGE THE USE OF PHONE REGISTRATION TO INSURE RECEIPT OF THESE GUIDES IN THE 90 DAY INITIAL SUPPORT PERIOD.

The above defined services are available on a continuing basis following the initial 90 day support period under Intel's Software Support Contract offerings.

For information on Intel's Software Support Contracts and the additional services listed below, contact your local Intel representative.

- 0 Consultancy Services on a long term or short term basis (Systems Engineering Support).
- 0 Training workshops on a wide variety of Intel products, available on a world-wide basis.
- 0 A full range of hardware maintenance services for the end user or the OEM/VAR customer.
- 0 Basic Software Support Contract. Similar to the Standard Service described above but does not include iTIPS or Insite User Library membership.

0205X



product release notes

EDITOR INFORMATION

Please be aware that many popular editors available for the PC append a control-Z character to the end of all program source files. This language product does not recognize control-Z as a valid character. It is therefore necessary to either remove the control-Z character prior to compiling a source file or to create and edit your source files with an editor which does not append this extra character.

We recommend using the Intel AEDIT text editor for PCDOS systems (D86EDI) to edit your source files. AEDIT Release 2.0 supports an easy-to-use menu driven interface, programmable macros, automatic indentation, optional hex input or display, and a number of text formatting features. Contact your Intel representative for more information.

An alternative is to remove the control-Z using the DOS COPY command. The syntax for this is as follows:

```
COPY <source-file-name>/a    <target-file-name>/b
```

Note that there is NO SPACE between the file names and the "/a" or "/b" sequence. This command will copy the source file to the target file deleting the final control-Z.



product release notes

086PLM51R1.2NL

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- II. COMPILER SPECIFIC NOTES

1. DOS - OPERATION SPECIFIC NOTES

CAUTION LIST

1. SYMPTOM When directing output to a full disk, an Intel translator or R & L (Linkage/Relocation) tool may terminate prematurely without giving any error message.

CAUSE Not known at this time.

SOLUTION Make sure your disk has sufficient space to contain any output these tools may generate before invoking them.
2. SYMPTOM File sharing conflicts may occur when using an Intel translator or R & L tool in a network environment.

CAUSE User error.

SOLUTION Before invoking an Intel translator or R & L tool (with network support), invoke the DOS 3.0 or later SHARE command. It is recommended that you invoke the SHARE command in your AUTOEXEC.BAT file.
3. SYMPTOM Confusion on user defined logical names. The default assignments for :F0: through :F9: and :WORK: are not on the user documentation.

CAUSE If these logical devices are not defined with the SET command, the default assignments for :F0: through :F9: are to devices A: through :J:. The default assignment for :WORK: is the current default disk.

SOLUTION Use SET command to assign desired logical devices.
4. SYMPTOM CTRL-C does not work as the interrupt character like CTRL-Break.

CAUSE These products do not support CTRL-C as the interrupt character.

SOLUTION Use CTRL-BREAK instead of CTRL-C.

5. SYMPTOM Files consisting of an 8-digit hex number with no extension may be left in the current :WORK: directory after typing CTRL-BREAK to abort an Intel translator or R & L tool or a user program converted to DOS with UDI2DOS.EXE.
- CAUSE These are temporary files created by these programs to store intermediate data. They are normally deleted at the end of a program's normal execution.
- SOLUTION Delete or ignore the files. No important information is contained in them.
6. SYMPTOM A fatal error is flagged when specifying long pathnames for output files, and the translator or R & L tool aborts.
- CAUSE While the DOS manual indicates that the maximum number of characters in a pathname is 63, in practice various products seem to restrict pathnames to less than 63 characters.
- SOLUTION To ensure compatibility with all products, make sure that all output pathnames do not exceed 43 characters.
7. SYMPTOM ERROR #21 --- FILE DOES NOT EXIST. Even though the file does exist, the Operating System still reports the error.
- CAUSE The PC/00S Operating System is installed incorrectly.
- SOLUTION Re-install the Operating System and make sure that it is DOS V3.0 or greater. DOS V3.0 or greater has a different COMMAND.COM file.
8. SYMPTOM SHARING VIOLATION ERROR READING DRIVE will be returned if a program which has been invoked by a command file is interrupted in the middle of that process by a system reset and you later attempt to access that file. If you have directed output from that command file, the same error will also appear for that output file. This will not occur on Intel NRM file servers but may occur on other types of networks.
- CAUSE A system reset may leave these files open, thus they cannot be reopened.
- SOLUTION Avoid resetting the system while a command file is executing on the network. You can type CTRL-C's or CTRL-BREAK's until the command file has exited.

11. COMPILER SPECIFIC NOTES

1. SYMPTOM An I/O Error is issued at compile- or assembly- time.
- CAUSE The 8051 products incorrectly parse file names with
more than one "." character in them. For example:
 > plm51 ..\myfile
- SOLUTION Use the full pathnames.

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<RETURN> denotes the carriage return key.
color indicates user input.
punctuation other than ellipses (. . .), braces ({ }), and brackets ([]) must be entered as shown.

Table 3-1 ICE™-5100 Emulator Commands Grouped by Category

Command	Description
Emulation and Trace Commands	
BRKREG	Register used to store break specifications.
CAUSE	Displays why and where emulation halted.
GO	Starts program execution; controls break and trace functions.
HALT	Halts program emulation.
ISTEP	Single-steps through a program by machine language instructions.
LSTEP	Single-steps through a program by line numbers.
PRINT	Displays the contents of the trace buffer; optionally displays clips data.
SYNCSTART	Enables and disables multi-ICE™ emulation.
TRCREG	Register used to store trace specifications.
WAIT	Suspends command processing during emulation.
\$	Displays or changes the current execution point; references program counter.
Memory Access Commands	
ADDRESS	Displays or changes memory as 16-bit unsigned values.
ASM	Displays or changes program memory as ASM-51 assembly mnemonics.
BIT	Displays or changes bit memory as 1-bit values.
BOOLEAN	Displays or changes memory as Boolean values.
BYTE	Displays or changes memory as 8-bit unsigned values.
CHAR	Displays or changes memory as ASCII characters.
LOAD	Loads a program into mapped program memory.
MAP	Displays or sets the memory map.
SAVE	Saves portions of program memory to a file.
VERIFY	Specifies memory write verification.
WORD	Displays or changes memory as 16-bit unsigned values.
Debug Environment Commands	
APPEND	Appends debug object definitions to a file.
BASE	Displays or changes the number base.

Table 3-1 ICE™-5100 Emulator Commands Grouped by Category (continued)

Command	Description
Utility Commands (cont.)	
CURHOME	Moves cursor to top left-hand corner of the screen.
DPTR	Displays or changes the DPTR register.
DYNASCOPE	Controls the operation of NAMESCOPE.
HELP	Provides on-line help.
INT	Displays interrupts that were active when emulation was halted.
NAMESCOPE	Displays or sets the current namespace for symbolic references.
RBANK	Displays or selects a bank of general purpose registers.
REGS	Displays selected registers and flags.
RESET	Resets specific emulator functions.
R0 - R7	Displays or modifies general-purpose registers.
SYMBOLIC	Enables or disables symbolic display.
TEMPCHECK	Controls user probe temperature checking.
TM0 - TM2	Displays or modifies the timer/counter registers.
VERSION	Displays the software version numbers
Compound Commands	
COUNT	Groups and executes emulator commands a specified number of times.
DO	Groups and executes commands.
IF	Groups and conditionally executes commands.
REPEAT	Groups and executes commands endlessly or until an exit condition is met.
Source Display Commands	
LPATH	Sets a path to the source list file for the program being executed.
POSTSRC	Determines the number of source code lines to display after a break point.
PRESRC	Determines the number of source code lines to display before a break point.
SET	Correlates an executable module to a source list file.
SHOWSRC	Displays lines of source code.
SOURCE	Controls display of source code.

Table 3-1 ICE™-5100 Emulator Commands Grouped by Category (continued)

Command	Description
Debug Environment Commands (cont.)	
DEFINE	Defines a debug object.
DIR	Displays program symbols and debug object names.
ERROR	Enables and disables the display of error information.
EVAL	Calculates and displays the result of an expression.
EXIT	Terminates a debug session and returns control to the host operating system.
INCLUDE	Retrieves command definitions from a file.
LIST/NOLIST	Opens or closes a list file.
LITERALLY	Stores and displays user-defined character strings.
MENU	Enables and disables the syntax menu display.
Paging	Controls screen display.
PROC	Stores a collective group of emulator commands.
PUT	Saves debug object definitions to a file.
REMOVE	Removes debug object definitions from memory.
WRITE	Formats and displays user-defined text to the screen.
String Functions	
CI	Reads a character from the host console.
CONCAT	Concatenates two strings into a single string and displays the result.
DCI	Reads a character from the host console; returns a zero if no character entered.
INSTR	Finds the starting position of a substring within a string.
NUMTOSTR	Converts an expression into ASCII code.
STRLEN	Returns the length of a character string.
STRTONUM	Converts a string to a numeric value.
SUBSTR	Extracts a portion of a character string.
Utility Commands	
I	DOS system escape.
EDIT	Invokes the debug editor.
CLEAR_EOL	Clears the screen from the cursor to end of line.
CLEAR_SCREEN	Clears the screen from the cursor to end of screen.
CURX	Displays the column number or moves the cursor to column x.
CURY	Displays the row number or moves the cursor to row y.

**™
ICE-5100 EMULATOR**

1. SYMPTOM The message "Processor module not responding" is displayed.
- CAUSE Power is applied to the ICE and ICE software invoked before power is applied to the user's target system (and bondout). This will occur only when the processor module is plugged into a target system and not in stand-alone mode, i.e., plugged into the crystal power accessory.
- SOLUTION Be sure the target system is also powered and the clock signal present before invoking the ICE software. Using 'Reset ICE' will also correct the problem.

NOTE:

If the clips connector is plugged into the ICE controller upside down, the pod will not work and the pod LED will not light. No damage will result.

ICE™-5100/252 PROBE**1. SYMPTOM Break on RETI (all CPU modes)**

If a breakpoint is placed at an RETI instruction, and another interrupt is pending when the break occurs, then the single instruction which should have been executed from the main program before the next interrupt is serviced will not occur. This will also happen when ISTEP or LSTEP is used to execute through multiple pending interrupts.

An example of this is if the TF2 bit in the T2CON register (H52 or C252 modes) is not cleared by the interrupt service routine. The timer2 interrupt will always be pending and, in normal emulation, will be repeatedly serviced with a single instruction executed from the main program in between. If ISTEP is used to step through this situation, or a breakpoint is placed at the RETI instruction, then the instruction which should have been executed between interrupts will not happen.

SOLUTION Don't place breakpoints on RETI or ISTEP through nested interrupts.

2. SYMPTOM Watchdog timer with external code (CPU = C252 mode only)

If the watchdog timer function is enabled and a watchdog reset occurs when the processor has been executing from external code memory (MAP USER, EA/ = 0), then the processor may not be reset properly and trace could be affected.

This problem is dependent on the amount of capacitance added by the user's target system to the ALE and PSEN/ lines.

- SOLUTION Map to ICE when using the watchdog timer. If executing from ICE memory and a watchdog timer reset occurs with MAP USER memory at address 0000, then the reset will be proper. Executing from USER memory with MAP ICE at address 0000 may not generate a correct reset when the watchdog timer times out.
3. SYMPTOM The ICE breaks even though the break instruction was never executed.
- CAUSE This will occur if a break point is set on the instruction immediately following an instruction that causes IDLE MODE to be entered. The break instruction will be traced, however.
- SOLUTION Do not place a break immediately after an IDLE MODE instruction.

NOTES

1. There will be an invalid trace frame following the exit of IDLE MODE. The instruction following the IDLE instruction, will be traced even though it was not executed until after the interrupt routine that caused the exit from IDLE MODE.
2. Trace may be lost if emulation is halted while the processor is in power-down mode.

TM
Known ICE-5100/252 V2.0 software anomalies:

1. SYMPTOM Internal error or symbol reference problems following the LOAD of an object file.

CAUSE Executing a LOAD APPEND to load an object file which contains no line information after using LOAD APPEND to load a file which did contain line information.

SOLUTION No workaround. If possible, try rearranging the order of loading to avoid the above condition.

2. SYMPTOM No trace information collected from the previous GO command following a HALT command.

CAUSE When an instruction is executed which puts the processor into power-down mode and emulation stops because of a HALT command, trace information from the execution point at the most recent GO command to the point of power-down is lost.

SOLUTION No workaround. If power-down mode is exited because of an external interrupt or processor reset while the probe is emulating, trace information will be collected as normal.

3. SYMPTOM Probe Interface Error when attempting a write to memory in XDATA space.

CAUSE On DOS systems with a clock speed greater than 6MHz, large memory writes can cause an error.

SOLUTION Reduce the amount of locations which are written in the command until the command is successful. This anomaly does not affect emulation and does not require the probe to be reset following the error.

4. SYMPTOM The ICE-5100 confidence tests fail when run at a baud rate of 19200.
- CAUSE On DOS systems, the confidence tests will run only if the baud rate variable V(E) is set to a value other than 19200 baud. The default is 9600 baud.
- SOLUTION Do not change the default baud rate. This anomaly does not mean that the ICE-5100 software will also fail at 19200 baud. Refer to User Probe Supplement, Appendix A, Section A.3 "Selecting a Non-Default Baud Rate" for information on different baud rates.

ICE™-5100/252 PROBE**BREAK ON RETI (all CPU modes)**

If a breakpoint is placed at an RETI instruction, and another interrupt is pending when the break occurs, then the single instruction which should have been executed from the main program before the next interrupt is serviced will not occur. This also happens when ISTEP or LSTEP is used to execute through multiple pending interrupts.

For example, if the TF2 bit in the T2CON register (H52, C51FA or C51FB modes) is not cleared by the interrupt service routine, the timer2 interrupt is always pending and, in normal emulation, will be repeatedly serviced with a single instruction executed from the main program in between. If ISTEP is used to step through this situation, or a breakpoint is placed at the RETI instruction, then the instruction which should have been executed between interrupts does not happen. Avoid placing breakpoints on RETI or ISTEP through nested interrupts.

WATCHDOG TIMER WITH EXTERNAL CODE

If the watchdog timer function is enabled in CPU C51FA or C51FB mode, and a watchdog reset occurs when the processor has been executing from external code memory (MAP USER, EA/ = 0), then the processor may not be reset properly and trace could be affected. This problem is dependent on the amount of capacitance added by your target system to the ALE and PSEN/ lines.

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To avoid this problem, map to ICE when using the watchdog timer. If executing from ICE memory and a watchdog timer reset occurs with MAP USER memory at address 0000, then the reset will be proper. Executing from USER memory with MAP ICE at address 0000 may not generate a correct reset when the watchdog timer times out.

ICE BREAKS

If a break point is set on the instruction immediately following an instruction that causes IDLE MODE to be entered, the ICE will break even though the break instruction was never executed. The break instruction will be traced, however. Do not place a break immediately after an IDLE MODE instruction.

NOTES

1. An invalid trace frame occurs following the exit of IDLE MODE. The instruction following the IDLE instruction, will be traced even though it was not executed until after the interrupt routine that caused the exit from IDLE MODE.
2. Trace may be lost if emulation is halted while the processor is in power-down mode.

3.1 Introduction

This chapter contains the ICE-5100 emulator commands and related topics in alphabetical order. There are six categories under which emulator commands are grouped. To help you become familiar with the commands, Table 3-1 lists the categories and the commands within each group.

ICE-5100 emulator commands are printed in uppercase letters (e.g., ADDRESS), while only the first letter of each topic is capitalized (e.g., Addr-spec).

3.2 Syntax Notation

The following syntax notation is used throughout this chapter. Becoming familiar with the notation makes using the command options easier.

<i>italics</i>	indicate variable expressions. Substitute a value or symbol.
{ <i>items</i> }	between braces indicate you must select one and only one item.
[<i>items</i>]	between brackets are optional items. You may select more than one item.
...	the preceding item may be repeated.
,...	the preceding item may be repeated with a comma between each repetition.
()	are necessary to enclose an expression such as (#35 + 5).
<i>device</i>	stands for the number or letter of a disk drive.
<i>dirname</i>	stands for any user-created directory.
<i>pathname:</i>	is the fully-qualified reference to a file.
'	denotes your keyboard's apostrophe (') key. If your keyboard has two apostrophe keys, determine which one the ICE-5100 emulator accepts in command syntax.
<CNTL>	denotes the host keyboard's control key. For example, <CNTL> <C> means enter C while pressing the control key.

POSTSRC

Determines the number of source code lines to display after a break point

Syntax

POSTSRC [= *expr*]

Where:

expr is a positive value from 0 to 65,535 (decimal). The default value is one.

Discussion

Use POSTSRC to set the number of lines of source text that will be displayed following an execution break. An = > marks the execution break point. Source text is displayed after the break message is displayed. See Example 3.

Examples

1. Set the value of POSTSRC to two.

```
hlt> POSTSRC = 2
```

2. Display the value of POSTSRC.

```
hlt> POSTSRC
2
```

3. Execute a program and view source code from a list file when SOURCE = TRUE and POSTSRC and PRESRC are at the default value (1).

```
hlt> GO FROM 0 TIL :main_display.init
emu>
```

```
Probe stopped at 0011H(:MAIN_DISPLAY#6)
because of internal break.
```

```
5 2  buff_size = LAST(message); /* store the maximum
                                index value */
=> 6 3  DO i = 0 TO <buff_size>;
    7 3  disp_buffer(i) = message(i); /* Fill the
                                       display buffer */
```

Examples

1. The following example assumes the module is named aprog. The executable code file is named aprog.51, and the compiler has generated a listing called aprog.lst. The executable code has been copied to the fixed disk, but aprog.lst is in drive A.

```
hlt> LPATH = A:
```

2. The program listing is in a sub-directory.

```
hlt> LPATH = progdir\listdir
```

3. Display the current LPATH.

```
hlt> LPATH
progdir\listdir
```

4. Use relative directories to set LPATH.

```
hlt> LPATH = . .\ .\listdir
```

Cross-Reference

DIR MODSET
LOAD
SET
SOURCE

LPATH

Sets a path to the source list file for the program being executed

Syntax

LPATH [= *directory-name*]

Where:

LPATH without a directory name displays the current listing path.
directory-path is the source list file directory (or disk drive) for the loaded object module.

Discussion

Use the LPATH command to set a path to the list file of the program being executed. The default path is the current directory. When a program is loaded, and SOURCE is set to TRUE, the ICE-5100 emulator finds a list file by:

- assuming that the pathname is in the current directory or the path was set with LPATH = *pathname*.
- assuming the base name of the file is the same as the module name with a .lst extension (e.g., if the module name is *proga*, the assumed list file name is *proga.lst*).

Only one LPATH can be defined at a time. When a new LPATH is defined, it replaces the old LPATH. When the extension of the list file is not .lst, when more than one module must have a path defined, or when the base part of the file name is not the same as the module name, use the SET command instead of the LPATH command.

SET

Correlates an executable module
to a source list file

Syntax

SET :*module-name* TO *pathname*

Where:

:*module-name* is the name of the module being debugged. The colon preceding the name is necessary.

pathname is the name and location of the list file.

Discussion

Use SET when the LPATH of executable modules cannot be determined by the ICE-5100 software because the name of a program (module) is different than the base name of the corresponding list file, or when the list file does not reside in the current LPATH.

Use SET when a program contains more than one module (e.g., modules compiled separately and then linked) or the module list files are located in different directories. The ICE-5100 program scans the list file during the first source code display to determine the computer language.

If the list file and the executable module are not SET, the ICE-5100 program uses LPATH to look for a .lst file. The ICE-5100 program assumes the base name for the .lst file is the same as the name of the module being emulated. If the LPATH is incorrect, and the module is not SET, a warning message is issued twice, and source access is then ignored until the module is SET.

Example

Correlate the PL/M-51 tutorial program to the list code in the progdir directory (not the current directory).

```
hlt> SET :main_display TO \listdir\messg.lst
```


SET (continued)

Cross-Reference

DIR
LPATH
SHOWSRC
SOURCE

SHOWSRC

Displays lines of
source code

Syntax

SHOWSRC *addr-spec*

Discussion

Use the SHOWSRC command to display a sequence of text lines from a list file when the location of the file is known to the ICE-5100 software. The location of the list file is known in two ways.

- The program listing generated during compile is in the current directory, the program module name and the base name of the list file is the same, and the list file has a .lst extension.
- The path to the single listing has previously been stored using the LPATH command or the SET command.

If SHOWSRC is entered when the path to a source text file is unknown, a warning message will be issued. This message will appear only twice, then the SHOWSRC command is ignored until the module is SET.

NOTE

To properly use source display, do NOT use a listing generated with the compiler's CODE option.

Examples

1. The example shows one line of source code at the program counter (\$).

```
hlt> SHOWSRC $
=> 5  2  buf_size = LAST(message); /* store the maximum
                                     index value */
```

SHOWSRC (continued)

2. The TO option is used with SHOWSRC.

```
hlt> SHOWSRC #5 TO #7
5 2 buff_size = LAST(message); /*store the maximum
                                index value */
=> 6 3 DO i = 0 TO <buff_size>;
7 3   disp_buffer(i) = message(i); /* Fill the
                                display buffer */
```

3. The LENGTH option is used with SHOWSRC.

```
hlt> SHOWSRC #7 LENGTH 4
7 3   disp_buffer(i) = message(i); /* Fill the
                                display buffer */
8 3   END;
9 2   tm0_low = reset_low; /* initialize timer 0 */
10 2  tm0_high = reset_high;
```

Cross-References

\$
addr-spec
LPATH
SET
SOURCE

Syntax

$$\text{SOURCE} \left[= \left\{ \begin{array}{l} \text{TRUE} \\ \text{FALSE} \\ \text{expr} \end{array} \right\} \right]$$

Where:

SOURCE	without argument displays a current value of the display pseudovvariable.
TRUE	enables display of source code.
FALSE	(initial value) disables display of source code.
<i>expr</i>	evaluates to TRUE or FALSE.

Discussion

Use the SOURCE pseudovvariable to control whether source code from the program list file is displayed at disassembly, trace display, and execution breaks. When SOURCE is set to TRUE, source code is displayed from .lst files. The display occurs when execution stops at a break point (GO), trace display (PRINT), and in disassembly (ASM).

For source code to be displayed, the ICE-5100 program must be able to identify the path to the source list file. See the LPATH and SET commands in this chapter.

NOTE

To properly use source display, do NOT use a listing generated with the compiler's CODE option.

Examples

1. Set SOURCE to true.
hlt> SOURCE = TRUE
2. Display the current setting of SOURCE.
hlt> SOURCE
TRUE

Table 3-1 ICE™-5100 Emulator Commands Grouped by Category (continued)

Command	Description
Utility Commands (cont.)	
CURHOME	Moves cursor to top left-hand corner of the screen.
DPTR	Displays or changes the DPTR register.
DYNASCOPE	Controls the operation of NAMESCOPE.
HELP	Provides on-line help.
INT	Displays interrupts that were active when emulation was halted.
NAMESCOPE	Displays or sets the current namescope for symbolic references.
RBANK	Displays or selects a bank of general purpose registers.
REGS	Displays selected registers and flags.
RESET	Resets specific emulator functions.
R0 - R7	Displays or modifies general-purpose registers.
SYMBOLIC	Enables or disables symbolic display.
TEMPCHECK	Controls user probe temperature checking.
TM0 - TM2	Displays or modifies the timer/counter registers.
VERSION	Displays the software version numbers
Compound Commands	
COUNT	Groups and executes emulator commands a specified number of times.
DO	Groups and executes commands.
IF	Groups and conditionally executes commands.
REPEAT	Groups and executes commands endlessly or until an exit condition is met.
Source Display Commands	
LPATH	Sets a path to the source list file for the program being executed.
POSTSRC	Determines the number of source code lines to display after a break point.
PRESRC	Determines the number of source code lines to display before a break point.
SET	Correlates an executable module to a source list file.
SHOWSRC	Displays lines of source code.
SOURCE	Controls display of source code.

POSTSRC (continued)

Cross-Reference

GO
PRESRC
SOURCE

PRESRC

Determines the number of source code lines to display before a break point

Syntax

PRESRC [= *expr*]

Where:

expr is a positive value from 0 to 65,535. The default value is one.

Discussion

Use PRESRC to set the number of program lines that will be displayed before an execution break. An => marks the execution break point. Source text is displayed before the break message is displayed. See Example 3.

Examples

1. Set the value of PRESRC to two.

```
hlt> PRESRC = 2
```

2. Display the value of PRESRC.

```
hlt> PRESRC
2
```

3. Execute a program and view source code from a list file when SOURCE = TRUE and POSTSRC and PRESRC are at the default value (1).

```
hlt> GO FROM 0 TIL :main_display.init
emu>
```

Probe stopped at 0011H(:MAIN_DISPLAY*6) because of internal break.

```
5 2  buff_size = LAST(message);           /* store the maximum
                                         index value */
=> 6 3  DO i = 0 TO <buff_size>;
7 3      disp_buffer(i) = message(i);      /* Fill the
                                         display buffer */
```



product release notes

ICE™-5100/252 VERSION 3.0 FOR DOS SYSTEMS

These Product Release Notes are divided into the following sections:

NEW FEATURES

PROBLEMS FIXED BY THIS UPDATE

KNOWN SOFTWARE ANOMALIES

NEW FEATURES

- **SYSTEM ESCAPE**

The new DOS shell escape enables going to the DOS operating system from the ICE-5100 system. The syntax is:

!<ENTER>

A DOS copyright message and prompt is displayed. Enter DOS commands at the prompt. Type EXIT to return to the ICE-5100 system.

- **INSTALL UTILITY**

This version of the ICE-5100 emulator includes a utility to install the software. Check for the system disk that has, "INSTALL utility" on the label. The INSTALL program copies the system software to the current disk\directory, and helps you create the files necessary to set up your system. Use INSTALL to determine the colors or style of the screen, the communication link to the host computer, the size of the virtual symbol table buffer, and the keyboard mode. Just choose the options and answer the questions after placing the INSTALL disk in drive A: and entering INSTALL.

- **POPUP HELP**

In addition to on-line help at the command line (*HELP topic*), pressing the <F1> function key draws a window for help topics. If help is available for the topic on the command line, text appears in the help window; otherwise, a list of topics appears in the window. Choose a topic as directed on the screen, and scroll through text for that topic after it appears in the window. Popup Help is documented in the Command Encyclopedia with HELP.

- **SOURCE DISPLAY**

View text from a list file (.lst) by setting several pseudovariables. When the SOURCE pseudovvariable is set to TRUE, the software looks for a .lst file in the current directory. Use SET or LPATH if the file is located in another place. PRESRC and POSTSRC determine how many lines of text will be displayed before and after an emulation breakpoint. SHOWSRC is a command that shows a specified amount of source text. See the Command Encyclopedia for more information on these commands.

PROBLEMS FIXED BY THIS UPDATE

The problem with large memory writes on DOS systems with a clock speed greater than 6MHz has been fixed.

KNOWN SOFTWARE ANOMALIES

USING INSTALL PROGRAM

When using the install program to copy ICE software into a directory where ICE software already exists, do not press <ENTER> after your response to the prompt: Overwrite existing file (Y/N)?. The <ENTER> will be queued as the response to the next overwrite question and you may not get all the ICE files copied onto your disk.

ICE-5100 TUTORIAL

In section 2.4 of the *ICE™-5100 Emulator Installation Supplement*, order number 167095, step 2 describes how to copy the emulator tutorial from the tutorial disk onto a system drive. The documented step is incorrect. To copy the tutorial software from the disk to the system drive, at the prompt enter:

```
G:\TUTDIR\> A:  
A:> CD TUTORIAL  
A:> COPY *.* C:\TUTDIR\
```

USING LOAD APPEND COMMAND

Executing a LOAD APPEND to load an object file which does not contain line information after using LOAD APPEND to load a file which *does* contain line information, causes internal error or symbol reference problems. Try rearranging the order of loading to avoid this problem.

ERROR #77

Error #77 Address or partition does not exist in <mspace> is returned when attempting a memory write to a partition near the end of the memory space boundry. A write command which contains more source values than will fit inside the memory partition does not truncate the extra values. For example, WORD CODE OFFFCH LENGTH 2 - 1,2,3. Include only the number of write values which will fit inside the memory space. For example, WORD CODE OFFFCH LENGTH 2 - 1,2.

GO COMMAND FOLLOWING HALT COMMAND

When an instruction is executed which puts the processor into power-down mode, and emulation stops because of a HALT command, trace information from the execution point at the most recent GO command to the point of power-down is lost. There is no workaround at this time, however if power-down mode is exited because of an external interrupt or processor reset while the probe is emulating, trace information will be collected as normal.

CONFIDENCE TESTS AND BAUD RATE

On DOS systems, the ICE-5100 system confidence tests fail when run at a baud rate of 19200. The confidence tests will run if the baud rate variable V(E) is set to a value other than 19200. Do not change the default (9600 baud), as this anomaly does not affect the ICE-5100 system software. Refer to Appendix A in the user probe supplement for information on different baud rates.